

REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claim 6 has been cancelled without prejudice or disclaimer. Claims 1, 2, 4, 5, 7 and 8 have been amended. Claims 1-5 and 7-8 remain pending in the present application. Reconsideration of the application and a favorable response are respectfully requested.

Claim 1 has been amended to incorporate the limitations of claim 6 and to correct minor informalities. Claims 2, 4-5 and 7-8 have been amended to correct minor informalities. No new matter has been added to the claim.

35 U.S.C 112 rejection, second paragraph

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter. Claims 1-2, 3-5 and 7-8 have been amended to correct the noted editorial issues.

35 U.S.C 103(a) rejection

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sunada (US patent 5,508,557) in view of Junya (JP05047954) and Cozar et al. (US patent 5,744,868). Applicants respectively traverse this rejection.

Sunada is directed to a surface mounting type diode which can be conveniently mounted on a surface of a circuit board at a high speed while eliminating or reducing the likelihood of improper mounting. Sunada discloses that the resin is injected into the molding cavity 7a through the runner 7b (see column 4, lines 15-17 and Figure 4). Figure 4 shows that the resin injecting port is located in the top face of the resin package, on the short side of the resultant package. By providing the resin injection port at the top face of the resin package, there is a problem of the formation of resin eddies and/or accumulations, leading to an insufficient sealing resin filling. Furthermore, the pressure of the injected sealing resin as disclosed by Sunada could cause the metal wire 5 to topple. Additionally, because the spacing between the inner wall of the

resin die and the inner lead becomes narrow, it is difficult to cause to fill insufficiently under the inner lead.

Claim 1 requires that the sealing resin is injected from a position on a longer side of the sealing resin package that is offset towards one shorter side thereof. By injecting sealing resin from a longer side at a position that is offset toward one of the shorter sides of the package, the resin fills into the areas above and under the lead smoothly, thereby preventing problems with insufficient resin filling and also preventing the bonding wire from toppling. By designing the injection position as claimed by claim 1, it becomes possible to obtain a small electronic device in which a portion insufficiently filled with the resin is extremely small.

Junya is directed to an invention that protects an outer lead that is exposed to the outside of a resin. A part of an outer surface of the lead is exposed from a lower surface of the resin, and the rest of the outer surface is sealed in the resin.

Cozar et al. is directed to an invention that provides a means for fabricating connection leads having a thickness of less than 0.1 mm for an electronic component, and having a mechanical strength to allow easy handling of the electronic component and its mounting on a printed circuit. The Cozar et al. invention relates to a composition of connection leads and an electronic component using the connection leads.

None of Sunada, Junya or Cozar et al. describes or suggests that a resin-sealed surface mount electronic device wherein the injection port is located on the longer side that is offset towards one shorter side thereof. Junya and Cozard et al. do not remedy the deficiencies of Sunada. Thus, Claims 1-5 and 7-8 are patentable over Sunada in view of Junya and Cozar et al.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made**".

In view of the above, it is submitted that the application is now in condition for allowance. Reconsideration and reexamination are requested. Allowance of claims 1-5 and 7-8 at an early date is solicited.

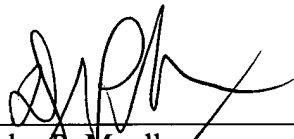
If a telephone conference would be helpful in resolving any issues concerning this communication, please contact Applicants' primary attorney-of record, Douglas P. Mueller (Reg. No. 30,300), at (612) 371.5237.

Respectfully submitted,

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Dated: September 27, 2001

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By 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	KOBAYASHI ET AL.	Examiner:	H. NGO
Serial No.:	09/415,121	Group Art Unit:	2831
Filed:	OCTOBER 8, 1999	Docket No.:	10873.444US01
Title:	ELECTRIC DEVICE		

VERSION WITH MARKINGS TO SHOW CHANGES MADE**In the claims:****1. (Amended) An electronic device comprising:**

an electronic element;

a first ~~external~~ lead with an element placement pad having a thickness t of less than 0.1 mm;

and a second ~~external~~ lead that is disposed at a distance from said element placement pad,

wherein said electronic element, element placement pad, part of said first ~~external~~ lead, and a part of said second ~~external~~ lead are sealed with a sealing resin in a package, said first ~~external~~ lead being bent in an S shape, ~~the~~ a bending depth d therefore being at least as large as the thickness t of said first ~~external~~ lead, and the thickness T of said resin on a non-device side of said element placement pad being smaller than said bending depth d , and

wherein the sealing resin is injected from a position on a longer side of the package, said position being offset toward one shorter side thereof.

2. (Amended) An electronic device according to claim 1, wherein the spacing between said element placement pad and said second ~~external~~ lead is no greater than 0.12 mm.

4. (Amended) An electronic device according to claim 1, wherein widths of inner lead parts of said first and second ~~external~~ leads within said sealing resin are substantially uniform.
5. (Amended) An electronic device according to claim 1, wherein the thickness of said electronic element is substantially the same as the thickness t of said first ~~external~~ lead.
7. (Amended) An electronic device according to claim 1, wherein ~~the~~ a bending radius R on ~~the~~ an outer surface of a bent part of said first ~~external~~ lead near ~~the~~ a bottom surface of said sealing resin is at least 0.05 mm and is no greater than the lead thickness t .
8. (Amended) An electronic device according to claim 1, wherein the sealing resin contains a filler, whose particle diameter is not greater than half the bending depth d of the said first lead.